

In the Claims

1-13 (canceled).

14. A conductive immunopolymer matrix comprising:

a) a first immunopolymer comprising a polyheteroaromatic polymer and an Fc receptor entrapped within said polymer, wherein a first antibody is bound to said Fc receptor in said first polymer, wherein the antigen-binding regions of said antibody are presented external to the surface of said first immunopolymer; and

b) a second immunopolymer comprising a polyheteroaromatic polymer and an Fc receptor entrapped within said polymer, wherein a second antibody is bound to said Fc receptor in said second polymer and said second antibody binds to a determinant or antigen that said first antibody does not bind, wherein the antigen-binding regions of said antibody are presented external to the surface of said second immunopolymer; and

wherein said first and second immunopolymers further comprise a cell monitoring system, wherein said cell monitoring system comprises horseradish peroxidase and glucose oxidase attached to or entrapped within said first and second immunopolymers.

15. The conductive immunopolymer matrix according to claim 14, wherein said antibody bound to said Fc receptor of said first immunopolymer binds to a CD3, CD4, CD7, CD8, CD10, CD11b, CD14, CD19, CD20, or CD33 determinant.

16. The conductive immunopolymer matrix according to claim 14, wherein said antibody bound to said Fc receptor of said second immunopolymer binds to a CD34 determinant.

17. The conductive immunopolymer matrix according to claim 14, wherein said polyheteroaromatic polymer is a polythiophene or a polypyrrole.

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18. The conductive immunopolymer matrix according to claim 14, wherein said polyheteroaromatic polymer is a naphthalene-doped polypyrrole or a toluene-doped polypyrrole.

19. The conductive immunopolymer matrix according to claim 14, wherein said polyaromatic polymer has a net negative charge at the surface of said polymer.

20. The conductive immunopolymer matrix according to claim 14, wherein said conductive polymer matrix is provided in a capillary, spiral sheet, or parallel sheet.

21. The conductive immunopolymer matrix according to claim 14, wherein said Fc receptor specifically binds to the Fc portion of IgG antibody.

22. The conductive immunopolymer matrix according to claim 14, wherein said Fc receptor specifically binds to the Fc portion of IgA antibody.

23. The conductive immunopolymer matrix according to claim 14, wherein said first and second immunopolymer are sequentially oriented with respect to each other.

24. The conductive immunopolymer matrix according to claim 14, wherein said first antibody binds to a determinant or antigen that is not expressed on a rare cell, and wherein said second antibody binds to a determinant or antigen that is expressed on a rare cell.

25. The conductive immunopolymer matrix according to claim 24, wherein said rare cell is a stem cell.

26. A conductive immunopolymer matrix comprising:

a) a first immunopolymer comprising a polyaromatic polymer and an Fc receptor entrapped within said polymer, wherein a first antibody is bound to said Fc receptor in said first

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polymer, wherein the antigen-binding regions of said antibody are presented external to the surface of said first immunopolymer; and

b) a second immunopolymer comprising a polyaromatic polymer and an Fc receptor entrapped within said polymer, wherein a second antibody is bound to said Fc receptor in said second polymer and said second antibody binds to a determinant or antigen that said first antibody does not bind, wherein the antigen-binding regions of said antibody are presented external to the surface of said second immunopolymer; and

wherein said first and second immunopolymers further comprise a cell monitoring system, wherein said cell monitoring system comprises horseradish peroxidase and glucose oxidase attached to or entrapped within said first and second immunopolymers.

27. The conductive immunopolymer matrix according to claim 26, wherein said antibody bound to said Fc receptor of said first immunopolymer binds to a CD3, CD4, CD7, CD8, CD10, CD11b, CD14, CD19, CD20, or CD33 determinant.

28. The conductive immunopolymer matrix according to claim 26, wherein said antibody bound to said Fc receptor of said second immunopolymer binds to a CD34 determinant.

29. The conductive immunopolymer matrix according to claim 26, wherein said polyaromatic polymer is a polyphenol.

30. The conductive immunopolymer matrix according to claim 26, wherein said polyaromatic polymer has a net negative charge at the surface of said polymer.

31. The conductive immunopolymer matrix according to claim 26, wherein said conductive polymer matrix is provided in a capillary, spiral sheet, or parallel sheet.

32. The conductive immunopolymer matrix according to claim 26, wherein said Fc receptor specifically binds to the Fc portion of IgG antibody.

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33. The conductive immunopolymer matrix according to claim 26, wherein said Fc receptor specifically binds to the Fc portion of IgA antibody.

34. The conductive immunopolymer matrix according to claim 26, wherein said first and second immunopolymer are sequentially oriented with respect to each other.

35. The conductive immunopolymer matrix according to claim 26, wherein said first antibody binds to a determinant or antigen that is not expressed on a rare cell, and wherein said second antibody binds to a determinant or antigen that is expressed on a rare cell.

36. The conductive immunopolymer matrix according to claim 35, wherein said rare cell is a stem cell.

37. A conductive immunopolymer matrix comprising a polymer and a molecule having binding specificity for a target molecule, wherein said polymer comprises a polyaromatic polymer, and wherein said molecule having binding specificity for a target molecule is an Fc receptor and is entrapped within said polymer.

38. The conductive immunopolymer matrix according to claim 37, wherein said polyaromatic polymer is a polyphenol.

39. The conductive immunopolymer matrix according to claim 37, wherein an antibody is bound to said Fc receptor and the antigen-binding regions of said antibody are presented external to the surface of said conductive immunopolymer matrix.

40. The conductive immunopolymer matrix according to claim 37, wherein said polymer has a net negative charge at the surface of said polymer.

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41. The conductive immunopolymer matrix according to claim 39, wherein said antibody binds to a CD34 determinant.

42. The conductive immunopolymer matrix according to claim 39, wherein said antibody binds to a CD3, CD4, CD7, CD8, CD10, CD11b, CD14, CD19, CD20, or CD33 determinant.

43. The conductive immunopolymer matrix according to claim 37, wherein said conductive immunopolymer matrix is provided in a capillary, spiral sheet, or parallel sheet.

44. The conductive immunopolymer matrix according to claim 37, wherein said conductive immunopolymer matrix further comprises a cell monitoring system, wherein said cell monitoring system comprises horseradish peroxidase and glucose oxidase attached to or entrapped within said polymer.

45. The conductive immunopolymer matrix according to claim 37, wherein said conductive immunopolymer matrix comprises multiple layers of said polymer, and wherein a different antibody is bound to said Fc receptor in each of said layers.

46. The conductive immunopolymer matrix according to claim 37, wherein said Fc receptor specifically binds to the Fc portion of IgG antibody.

47. The conductive immunopolymer matrix according to claim 37, wherein said Fc receptor specifically binds to the Fc portion of IgA antibody.

48. A conductive immunopolymer matrix comprising a polymer and a molecule having binding specificity for a target molecule, wherein said polymer comprises a polyheteroaromatic polymer, and wherein said molecule having binding specificity for a target molecule is an Fc receptor and is entrapped within said polymer.

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49. The conductive immunopolymer matrix according to claim 48, wherein said polyheteroaromatic polymer is a polythiophene or a polypyrrole.

50. The conductive immunopolymer matrix according to claim 48, wherein said polyheteroaromatic polymer is a naphthalene-doped polypyrrole or a toluene-doped polypyrrole.

51. The conductive immunopolymer matrix according to claim 48, wherein said polymer has a net negative charge at the surface of said polymer.

52. The conductive immunopolymer matrix according to claim 48, wherein an antibody is bound to said Fc receptor and the antigen-binding regions of said antibody are presented external to the surface of said conductive immunopolymer matrix.

53. The conductive immunopolymer matrix according to claim 52, wherein said antibody binds to a CD34 determinant.

54. The conductive immunopolymer matrix according to claim 52, wherein said antibody binds to a CD3, CD4, CD7, CD8, CD10, CD11b, CD14, CD19, CD20, or CD33 determinant.

55. The conductive immunopolymer matrix according to claim 48, wherein said conductive immunopolymer matrix is provided in a capillary, spiral sheet, or parallel sheet.

56. The conductive immunopolymer matrix according to claim 48, wherein said conductive immunopolymer matrix further comprises a cell monitoring system, wherein said cell monitoring system comprises horseradish peroxidase and glucose oxidase attached to or entrapped within said polymer.

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57. The conductive immunopolymer matrix according to claim 48, wherein said conductive immunopolymer matrix comprises multiple layers of said polymer, and wherein a different antibody is bound to said Fc receptor in each of said layers.

58. The conductive immunopolymer matrix according to claim 48, wherein said Fc receptor specifically binds to the Fc portion of IgG antibody.

59. The conductive immunopolymer matrix according to claim 48, wherein said Fc receptor specifically binds to the Fc portion of IgA antibody.

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